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AMSAT NEWS SERVICE
ANS-315

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

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SB SAT @ AMSAT $ANS-315.01
ANS-315 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 315.01
>From AMSAT HQ KENSINGTON, MD.
DATE November 11, 2018
To All RADIO AMATEURS
BID: $ANS-315.01

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Spaceflight's SSO-A rideshare mission, a stack of satellites heading into sun-synchronous polar orbit. This stack includes AMSAT's Fox-1Cliff.

The launch is now scheduled for scheduled for Monday, November 19, 2018 at 18:32 UTC.

Fox-1Cliff carries the Fox-1 U/v FM repeater as well as AMSAT's L-Band Downshifter.
Uplink: 435.300 MHz FM voice (67.0 Hz CTCSS tone)
1267.300 MHz FM voice (67.0 Hz CTCSS tone)
Downlink: 145.920 MHz FM voice; AFSK digital data up to 9600 bps
Transmit power: 600 mW nominal

Fox-1Cliff carries the flight spare of the AO-85 Vanderbilt University Low Energy Proton (LEP) radiation experiment, and the standard Fox-1 Penn State University–Erie gyroscope experiment. Virginia Tech provided a VGA camera which is the same as AO-92 but will provide images at a higher 640 x 480 resolution. These non-SSTV images will be decoded in the FoxTelem software.

Fox-1Cliff, unlike the other three Fox-1 FM spacecraft, does not have an active AFC (Automatic Frequency Control) on the uplinks.

Fox-1Cliff's Data Under Voice (low-speed telemetry) will be the same as for AO-85, AO-91, and AO-92. It will be supported by the same FoxTelem software already released.

As with AO-92, a high-speed mode will be used to support the Virginia Tech VGA camera experiment. This mode will be active for 40 minutes by ground command before reverting to standard U/v repeater voice operation.

Numerous small payloads will be launched on this mission for nearly 50 government and commercial organizations from 16 countries.

[ANS thanks Spaceflight Now for the above information.]

Fox-1Cliff Launch Membership Drive

As announced in a special bulletin earlier this week, as part of the preparations for the launch of Fox-1Cliff, AMSAT is making the "Getting Started With Amateur Satellites" book available for a limited time as a download with any paid new or renewal membership purchased via the AMSAT Store. This offer is only available with purchases completed online, and for only a limited time. A perennial favorite, Getting Started is updated every year with the latest amateur satellite information, and is the premier primer of satellite operation. The 186 page book is presented in PDF format, in full color, and covers all aspects of making your first contacts on a ham radio satellite.

Please take advantage of this offer today by visiting the AMSAT store at https://www.amsat.org/shop/ and selecting any membership option. While there, check out AMSAT's other items, including the M2 LEOpack antenna system, Arrow antennas, AMSAT shirts, and other swag. Be sure to view your cart before going to checkout. If you add a membership and then go directly to checkout, you'll never see an option to add your free gift.

Fox-1Cliff, is scheduled to launch on Spaceflight's SSO-A mission on a SpaceX Falcon 9 from Vandenberg Air Force Base. Fox-1Cliff carries the Fox-1 U/v FM repeater as well as AMSAT's L-Band Downshifter.

Fox-1Cliff is named in honor of long-time AMSAT member, contributor, and benefactor Cliff Buttschardt, K7RR (SK), who passed away in 2006. Cliff's contributions to AMSAT and other amateur satellite programs, including serving as an adviser during the initial development of the CubeSat specification at California Polytechnic State University, earned him the Lifetime Achievement Award from Project OSCAR in 2006.

"Fox-In-A-Box" SD Cards Now Available From AMSAT Store

Fox-in-a-Box is a small, easily-deployed Fox satellite telemetry receiver based on a Raspberry Pi 3B+ and a FUNcube Dongle Pro+. You can read about it in the AMSAT 2018 Symposium Proceedings (digital copies available on the AMSAT store at https://www.amsat.org/product/2018-amsat-symposium-proceedings-digital-download/),
or you can find a somewhat less extensive description with parts list and instructions at http://burnsfisher.com/AMSAT/FoxInABox

Get started by simply plugging these 8 GB SD Cards with the Fox-in-a-Box software pre-installed into your Raspberry Pi and booting it. Just a bit of configuration (your call and grid) required.

The website above also has an SD card image, but buying the SD card with the software pre-installed saves a lot of trouble and any additional proceeds go to Keeping Amateur Radio in Space. Order yours today at
https://www.amsat.org/product/fox-in-a-box-raspberry-pi-sd-card/

Raspberry Pi and FUNcube Dongle Pro+ Not Included

[ANS thanks Burns Fisher, WB1FJ, AMSAT Flight Software, for the above information]

Can You Capture a Double Hop APRS Packet?

With both ISS and PSAT now operational, this would be a good time for all users to be using the transmit dual hop path of ARISS,ARISS to maximize someone else on some other continent receiving them!

Challenges: Since PSAT has only a 0.2W transmitter, the ISS is simply never going to hear it. But the chance of PSAT hearing the ISS is 20 times better. So the best chance of success is via ISS first then PSAT. But if they both hear the uplink packet, then PSAT will be transmitting at the same time ISS is and so a dual hop is blocked.

So here is the best scenario for dual hop success:

1) Stations transmit via ARISS,ARISS on one continent hitting only ISS and NOT hitting PSAT at same time, while
2) PSAT is in footprint of ISS but also over mostly ocean so it might hear ISS without lots of user QRM, and
3) A receiving station is on a distant continent looking out over water towards PSAT.

Then chances could be good. Notice, the transmitting stations can be any users as long as they are using the ARISS,ARISS path. So the only person that has to do any planning is simply coastal receiving stations.

And remember, no one will find these on the ARISS or PSAT downlink pages because most likely only the first hop will be captured and the second hop will be rejected as a dupe. That is why everyone should always watch the downlink live if they want to capture one of those rare 2-hop APRS packets.

[ANS thanks the Bob Bob Bruninga WB4APR for the above information.]

Europe’s third polar-orbiting weather satellite launched

The third MetOp satellite, MetOp-C, has been launched on a Soyuz rocket from Europe’s Spaceport in French Guiana to continue the provision of data for weather forecasting from polar orbit.

Carrying the 4083 kg MetOp-C satellite, the Soyuz rocket lifted off on 7 November at 00:47 UTC. Some 60 minutes later Soyuz’s upper stage delivered MetOp-C into orbit and contact was established through the Yatharagga ground station in Australia.

MetOp-C is the last in the current series of MetOp satellites, following on from MetOp-A, which was launched in 2006, and MetOp-B, which was launched in 2012.

The MetOp satellites are developed by ESA under a cooperation agreement to form the space segment of the Eumetsat Polar System. This system is Europe’s contribution to a multi-orbit polar system shared with the US NOAA agency.

More details available at:
http://www.southgatearc.org/news/2018/november/metop-satellite-launched.htm

[ANS thanks Southgate ARN for the above information]

Collision Avoidance and Debris Mitigation for SSO-A Mission

The upcoming launch of Spaceflight mission SSO-A will involve the deployment of more than 70 objects, one of which will be AMSAT's Fox-1Cliff cubesat. Spaceflight engineers have had to develop a strategy to keep so many objects in similar orbits from colliding with one another. A brief discussion is available at:
http://spaceflight.com/collision-avoidance-and-debris-mitigation-for-spaceflights-sso-a-mission/

[ANS thanks Spaceflight Industries for the above information]

Challenges Identifying Newly Launched Objects

Another issue associated with the upcoming SSO-A launch, including Fox-1Cliff, is figuring out which satellite is which. Whenever satellites are launched, one of the first challenges is to find and track all the objects associated with that launch. This process must be performed as expeditiously as possible, to support early-orbit operations and safety of the flight. A paper discussing a simple technique which quickly assesses all available operator orbital data against the latest TLE data available from Joint Space Operations Center (JSpOC) may be of interest and is available at: https://celestrak.com/publications/IAC/2017/

[ANS thanks Celestrak for the above information]

Upcoming Satellite Operations

South Texas Grid Expedition (EL06, EL07, EL08, EL15, EL16, EL17, EL18) – November 11-15, 2018

Glenn, AA5PK, will be travelling through South Texas, November 11th-15th. Barring unforeseen circumstances, he will activate EL06, EL07, EL08, EL15, EL16, EL17 and EL15. Glenn will be on both FM and linear satellites and will post specific pass announcements on Twitter, https://twitter.com/AA5PK. He will also be position beaconing on APRS as AA5PK-9.

Bermuda (DXCC NA-005) – November 12-14, 2018

Tom, N2YTF, will be operating as N2YTF/VP9/P from Bermuda, NA-005 vacation style Nov. 12, 13, 14; all FM passes (and perhaps a few transponder birds). Tom will also be working HF QRP portable from the beach. Tom is looking for a 2m ssb tropo path to some US super station(s). If interested, contact him directly.

Key West, FL (EL94) – November 27 – December 1, 2018

Tanner, W9TWJ, will be vacationing in Key West, Florida from November 27th to December 1 , 2018. While there, he will work as many FM passes as he can (holiday style). Keep an eye on his Twitter feed for pass announcements, https://twitter.com/twjones85

RMS Queen Mary (DM03) – December 15, 2018

Patrick , WD9EWK, will be part of a day of satellite operating from a deck on the RMS Queen Mary, docked at Long Beach in southern California, on Saturday 15 December 2018. Operations will be portable, almost like a Field Day, and should include FM, SSB, and possibly packet. All operations from the Queen Mary will be as W6RO, the call sign for the wireless room on the
ship operated by the Associated Radio Amateurs of Long Beach.
Depending on staffing in the W6RO wireless room, there may also be HF activity during the satellite operation.
QSLing for the W6RO satellite activation will be handled per the procedure on W6RO’s QRZ page: http://www.qrz.com/db/W6RO
Please submit any additions or corrections to ke4al (at) yahoo.com
Updated October 25, 2018

[ANS thanks Robert KE4AL for the above information]

ARISS News

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*  AMSAT and ARISS are currently supporting a FundRazr campaign      *
*  to raise $150,000 for critical radio infrastructure upgrades      *
*  on ISS. The upgrades are necessary to enable students to          *
*  continue to talk to astronauts in space via Amateur Radio.        *
*                                                                    *
*                    $14,320 raised so far                           *
*                                                                    *
*        For more information and to DONATE TODAY visit              *
*                                                                    *
*    https://fundrazr.com/arissnextgen?ref=ab_e7Htwa_ab_47IcJ9       *
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ARISS Contact Completed

Bishop O’Connell High School, Arlington, VA, telebridge via W6SRJ
was successful. Mentors were Bob N3IYI and Dave W8AAS
The ISS callsign was NA1SS
The astronaut was Serena Aunon-Chancellor KG5TMT
Contact began: Thu 2018-11-08 15:56:28 UTC

Upcoming ARISS Contact Schedule as of 2018-11-07

New English School, Jabriya, Kuwait, telebridge via K6DUE
The ISS callsign is presently scheduled to be NA1SS
The scheduled astronaut is Serena Aunon-Chancellor KG5TMT
Contact is a go for: Tue 2018-11-13 10:08:08 UTC 50 deg

ARISS-US program’s education proposal window now open until Nov. 30

ARISS is seeking proposals beginning October 1, 2018 from US schools, museums, science centers and community youth organizations (working individually or together) to host amateur radio contacts with an orbiting crew member aboard the International Space Station (ISS) between July 1 and December 30, 2019. If you are interested in applying for an ARISS contact, please go to http://www.ariss.org/apply-to-host-an-ariss-contact.html

[ANS thanks AJ9N for the above information]

Correction

In last weeks ANS 308 story, AMSAT Announces Senior Leadership Positions for 2018, Joe Spier, K6WAO was accidentally included on the list of Board of Directors. Joe, of course, is the AMSAT President and is not on the Board of Directors.

ANS regrets this mistake.

The following people make up AMSAT’s Board of Directors and Alternates.

AMSAT Board of Directors

Paul Stoetzer, N8HM
Clayton Coleman, W5PFG
Tom Clark, K3IO
Jerry Buxton. N0JY
Bruce Paige, KK5DO
Mark Hammond, N8MH
Peter Portanova, W2JV (First Alternate)
Scott Harvey, KA7FVV (Second Alternate)

[ANS thanks the BoD for the above information.]

Satellite Shorts From All Over

+ Happy 34th Launch Anniversary AO-7
  AMSAT-OSCAR 7 was launched November 15, 1974 by a Delta 2310 launcher from Vandenberg Air Force Base, Lompoc, California.

+ ISS Video available on Facebook
  A short video clip of Serena Aunon-Chancellor, KG5TMT, operating the amateur station aboard the ISS for random contacts on Oct. 25 was posted to the AMSAT Facebook page by NASA Flight Surgeon, Keith Brandt, WD9GET. It is available at https://www.facebook.com/groups/201031309923094/permalink/2806315769394622/
  [ANS thanks KG4AKV for the above information]

+ The FCC is looking for engineers who want to work for the Commission.
  They are currently accepting applications for the Engineering Honors Program until 11/30! Apply here: https://www.usajobs.gov/GetJob/ViewDetails/513732500

+ Aspiring Scientists to Launch the World’s Lightest Satellites
  A story featuring a program helping high school students in India to build and launch the upcoming KalamSat 2 micro-satellite, which will include an amateur radio transmitter, may be found at: http://kwhs.wharton.upenn.edu/2018/11/young-scientists-worlds-lightest-satellite/
  [ANS thanks The Wharton School of Business, University of Pennsylvania, for the above information]

+ How to live stream SpaceX’s remaining launches in 2018
  Get a glimpse of the launch of Fox-1Cliff and other lift-off events on SpaceX’s YouTube Channel. The company is yet to confirm that all remaining launches will be live streamed, but at this stage, it looks likely. For details, see: https://www.techly.com.au/2018/11/05/live-stream-spacexs-five-remaining-launches-2018/
  [ANS thanks Techly for the above information]

+ EME 2018 conference videos available
  Videos of the talks given at the EME 2018 conference are now available to view on YouTube. The conference was held August 16-18 at Egmond aan Zee, The Netherlands. Watch the videos at: https://www.youtube.com/channel/UCMWIm0ddkVR34SrvhaF7Ntg/videos
  [ANS thanks Southgate ARN for the above information]

+ Video of Es'hail-2 geostationary transponder satellite talk
  More videos from the AMSAT-UK Colloquium, part of the RSGB Convention, held at Milton Keynes Oct 13-14 are now available on the AMSAT-UK YouTube Channel. Among the presentations given was one on the amateur radio transponders on the satellite Es'hail-2 that is expected to be launched into a geostationary orbit soon. Watch

  Es'hail-2 and it's Amateur Radio payload by Graham Shirville G3VZV
  and Dave Crump G8GKQ at:
  https://www.youtube.com/watch?v=sx5p8I20bjY&t=44s
  [ANS thanks Southgate ARN for the above information]

+ AMSAT Symposium Videos Available Online
  Friday Symposium Talks: https://youtu.be/d4AZmhPu0S0
  Saturday Symposium Talks: https://youtu.be/6TraWCirFUs
  Schedule of Speakers: https://www.amsat.org/call-for-papers/
  [ANS thanks the Symposium Committee for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and Remember to help keep amateur radio in space,
This week's ANS Editor,
Mark D. Johns, K0JM
K0JM at amsat dot org